Progetto

RESET

Simulatore di Training per la Navigazione Fluviale

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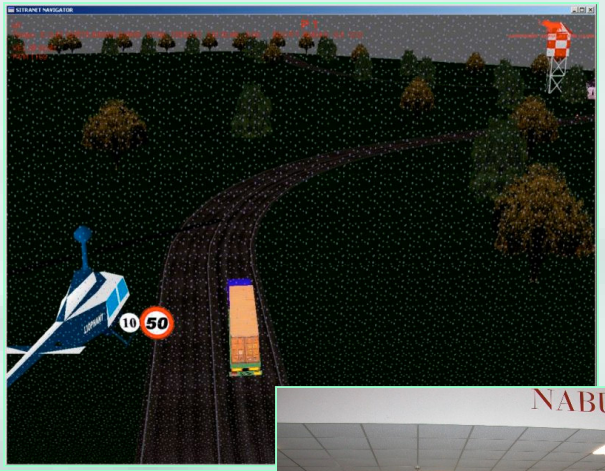
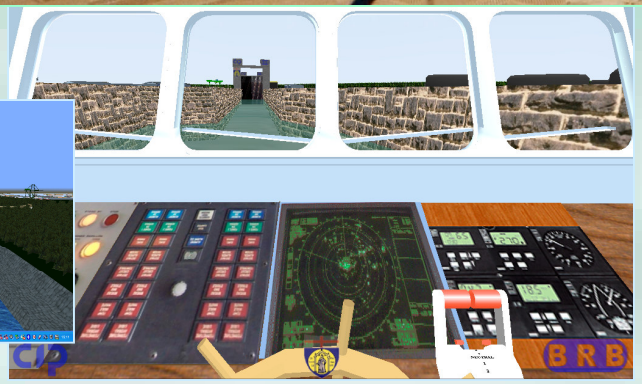
Research Activities

- Development of Logistics Training Equipment based on Simulation
- HLA integration for Cooperative Competitive Training
- VV&A Procedures for Training Simulator within Logistics Operator





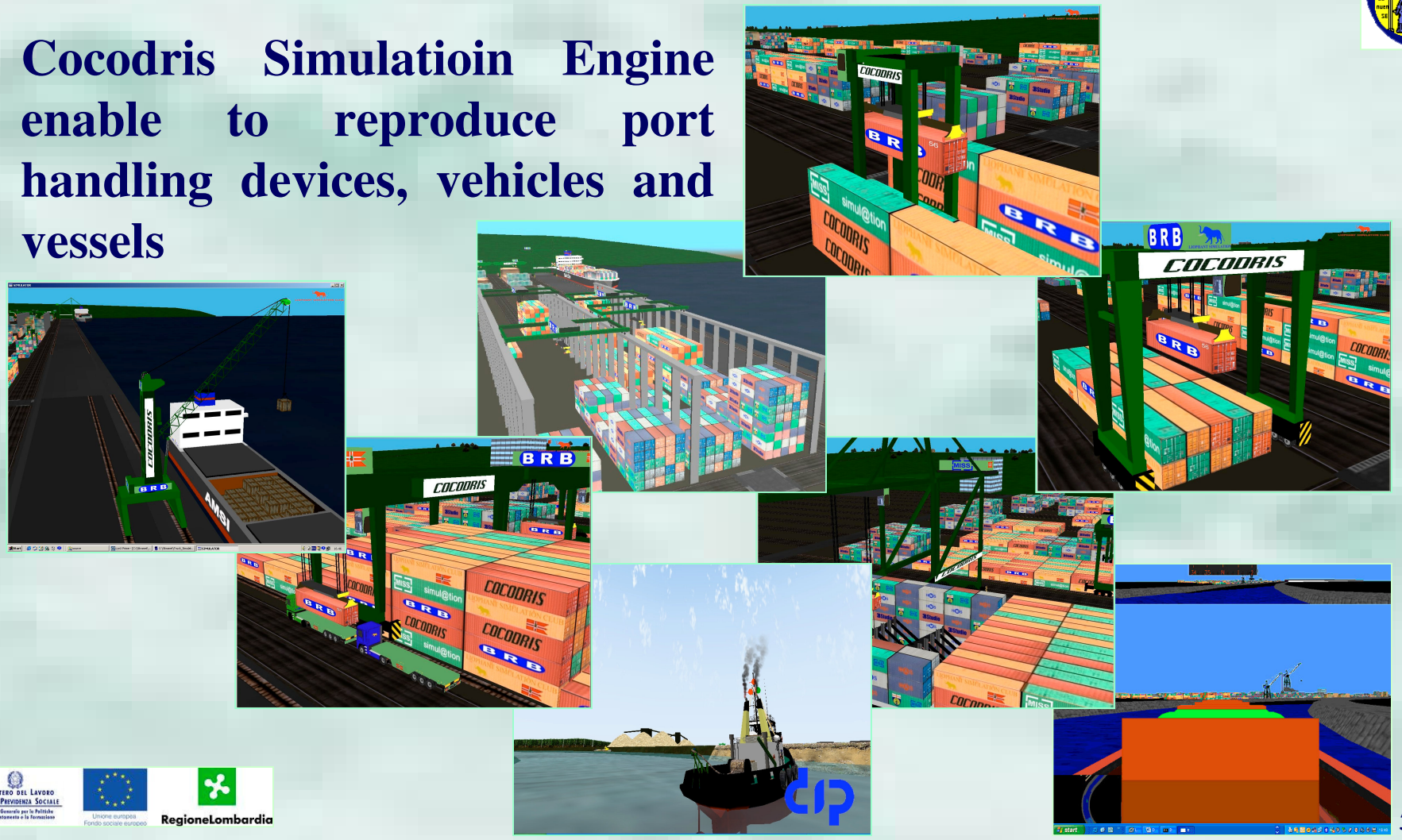
HLA Federation per Training nella Logistica

La ricerca mira a sperimentare diverse applicazioni per l'impiego della Simulazione Real-Time Distribuita, basata sullo Standard HLA, nel settore della Logistica con particolare attenzione a:

- *Definizione delle Procedure Operative*
- *Formazione degli Operatori*
- *Sicurezza nell'Handling ed Efficienza Operativa*

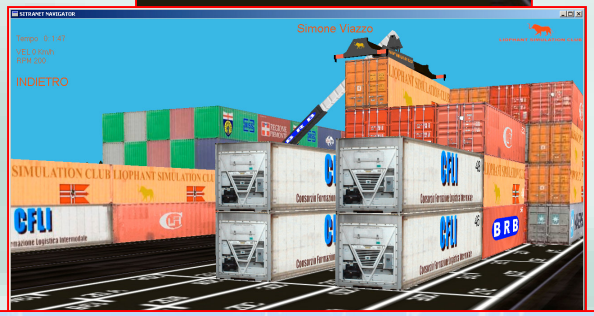
Sea and River Port, Intermodal Terminal

Cocodris Simulatioin Engine enable to reproduce port handling devices, vehicles and vessels



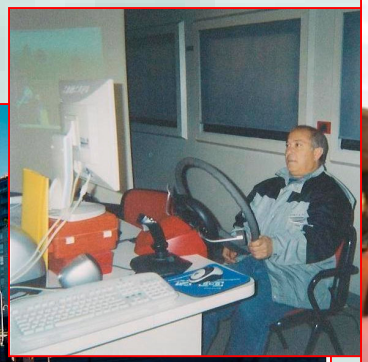
Real-Time Distributed Simulation

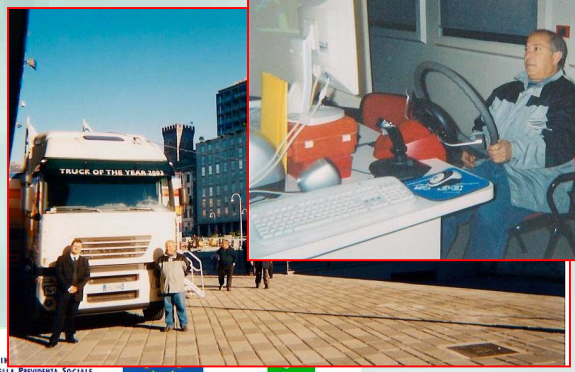
- RESET project is focusing on the development of Real-Time Distributed Simulator that enable the following activities:
  - Multiple Training Session
  - Cooperation among Trainees
  - Competition among Trainees



Simulation Dynamic Interactions

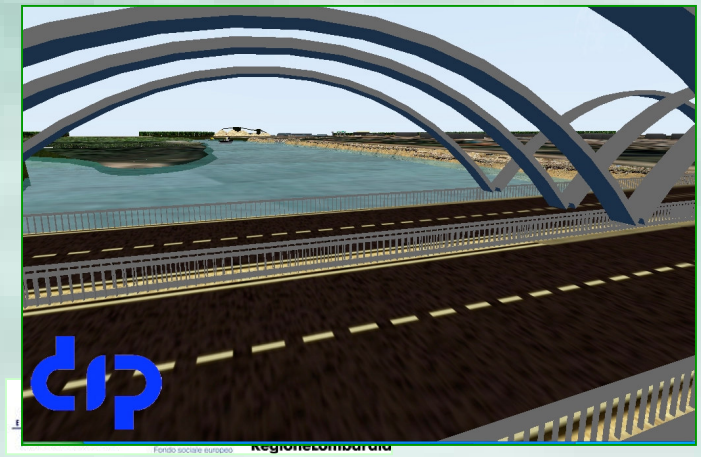
Cocodris Simulator allows to combine different real and virtual interfaces for improving flexibility and efficient training



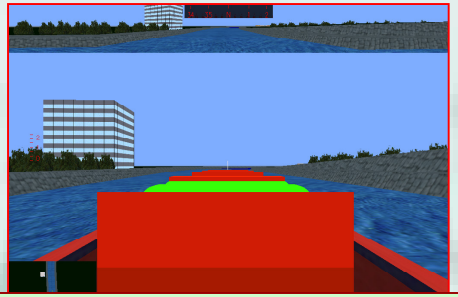


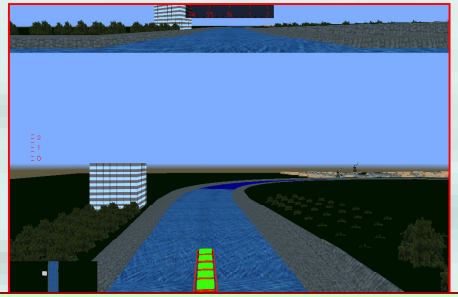
Weather Conditions

Cocodris provides very different weather conditions, including ground characteristics for testing driving ability with fog, snow, rain etc.

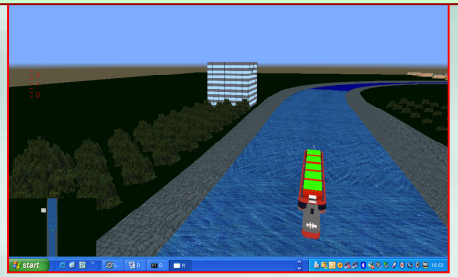


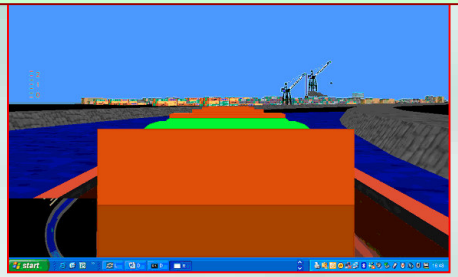
RIVER BOATS First Testing

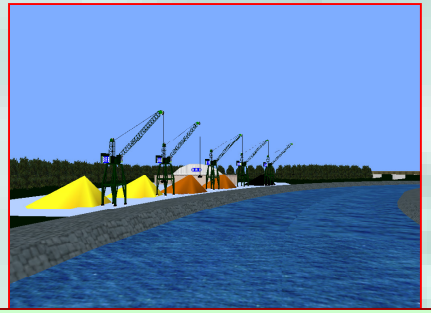


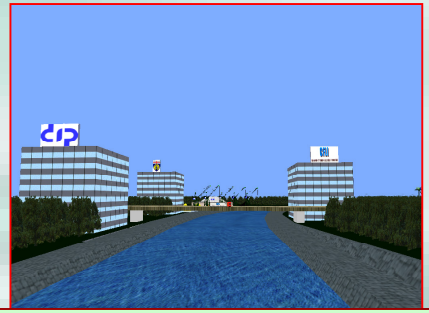


Cocodris allowed to test preliminary developments of river boat virtual environments for simulation of logistics operations









Cocodris Scenario allowed to test Open Issues in each single Customization of the river

RIVER BOATS: Reset Tailoring

The Cocodris allowed to reproduce the different operations related to river navigation

Data Acquisition

DIP collected the information about mapping and river characteristics

Tratto Po - Sistema Avanconca Biconca di Cremona (Mandracchio)

- lunghezza: 0,52 km
- cunetta di fondo: >30 m
- tirante d' acqua: in funzione del livello idrometrico del Po, da 2 m a 6 m
- tirante d' aria: illimitato
- quota di navigazione: 28 - 34 m sul lmm

Sistema Avanconca Biconca di Cremona

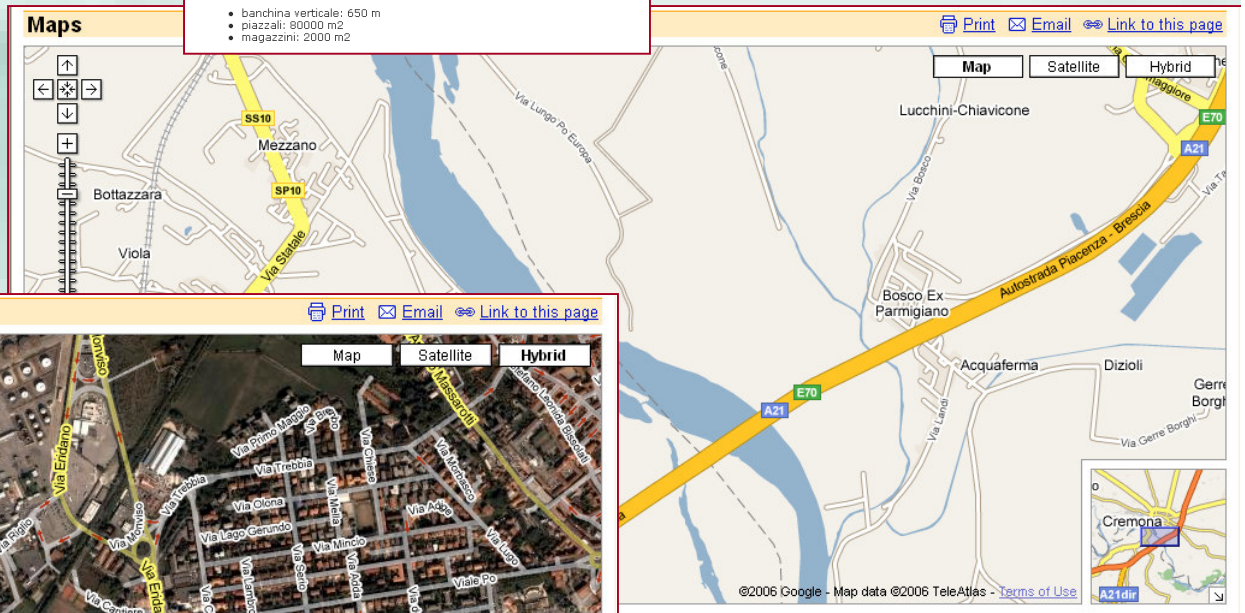
- larghezza avanconca: 12 m
- lunghezza utile avanconca: 110 m
- tipo porta avanconca: vinciana
- larghezza biconca: 12 m
- lunghezza utile biconca: 197 m
- tipo porte: a scorrimento verticale
- salto: 6,30 m
- tirante d' acqua: da 2,00 a 5,00 m
- tirante d' aria: 6,50 m

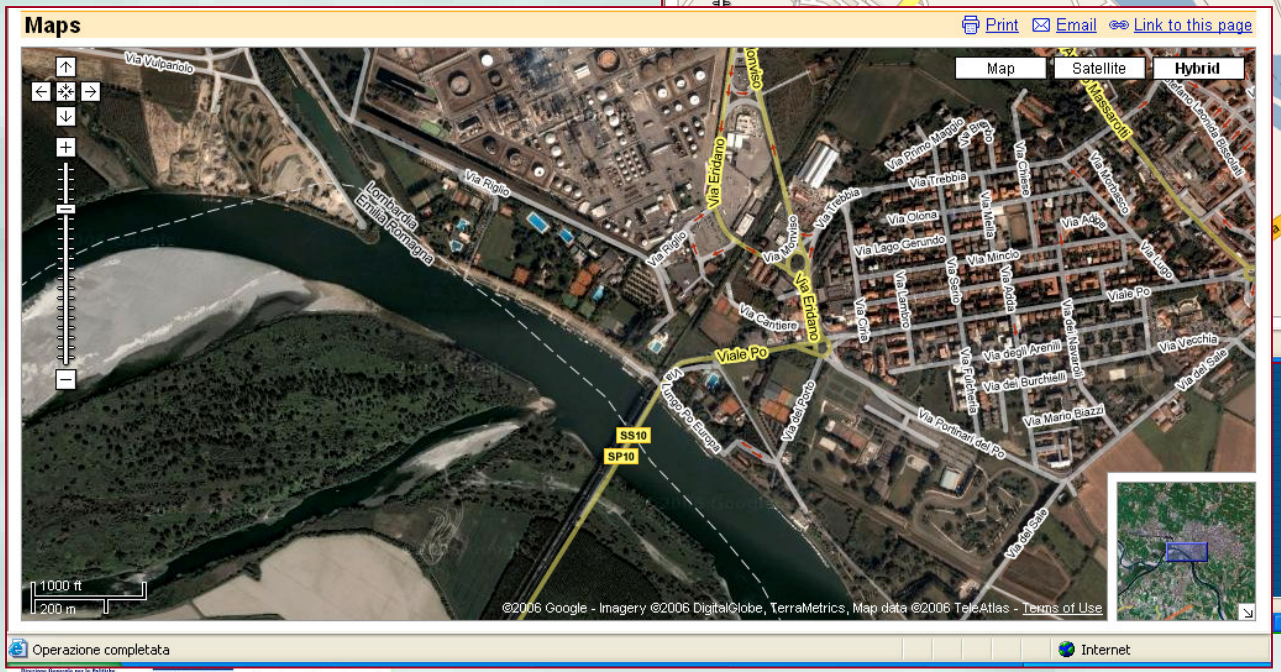
Tratto Sistema Avanconca Biconca di Cremona - Conca di Acquanegra

- cunetta di fondo: almeno 28 m
- tirante d' acqua: 3,80 - 4,30 m
- quota di navigazione: 38,30
- lunghezza: 7,256 km
- tirante d' aria: 6,50 m
- note: la prima parte di questo tratto coincide con il porto di Cremona

Porto di Cremona

- banchina verticale: 650 m
- piazzali: 80000 m2
- magazzini: 2000 m2



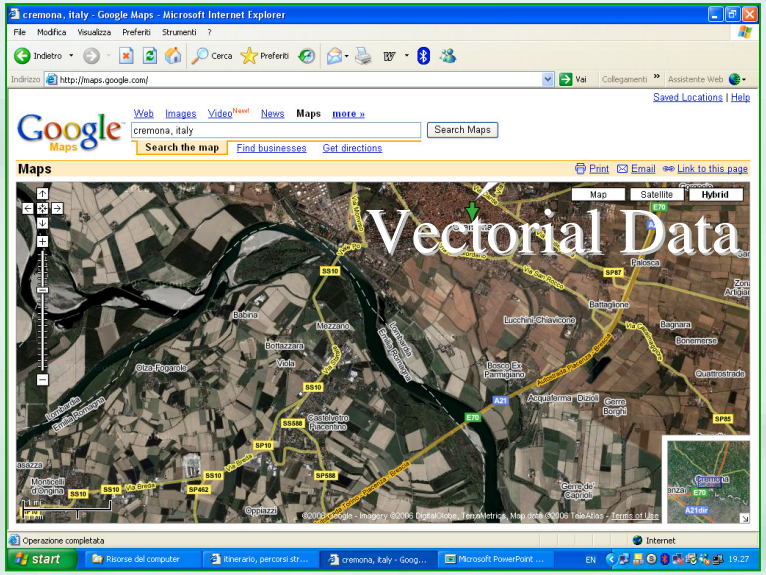


RegioneLombardia

Data Collection

DIP collected directly images and data about the Cremona Area

Po River Modelling

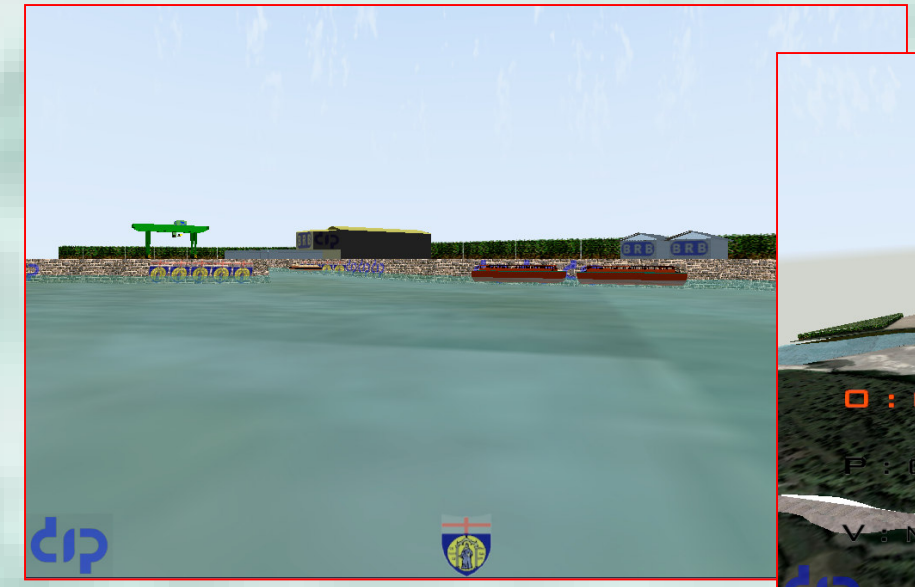


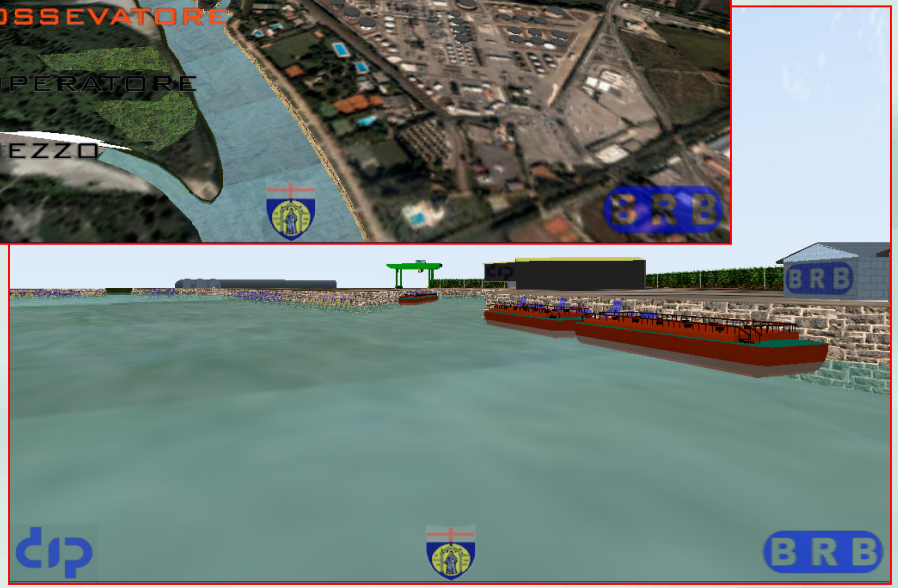
Data have been combined to create a Synthetic Environment of PO Riveer

Training Scenario

An Area of 400km^2 of Po area including Cremona Port have been introduced in Terrain Database for creating the Scenario

Port Overview

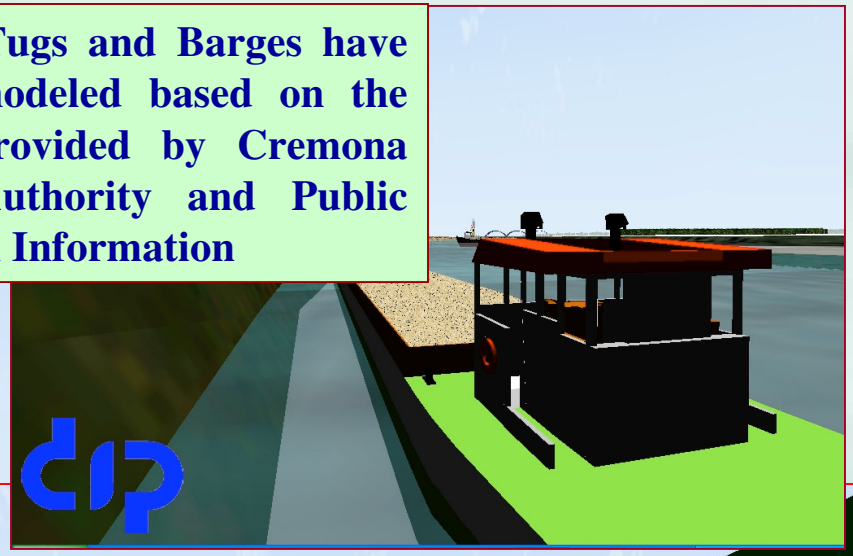




The Cremona Port has been modeled for providing an effective training framework

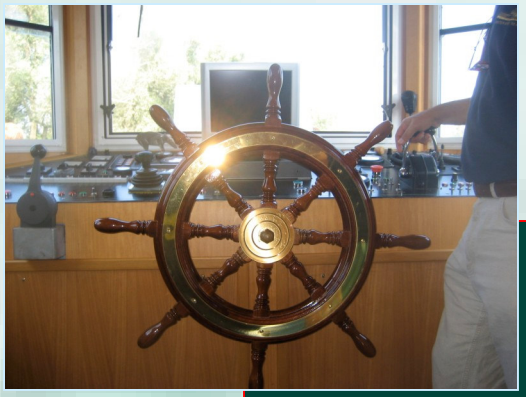
River Boats

River Tugs and Barges have been modeled based on the data provided by Cremona Port Authority and Public Domain Information



Bridge Original Viewpoint

The Simulator provides multiple views for training purposes



Bridge Update

The Simulator Includes a Virtual Deck with Commands and Control Systems

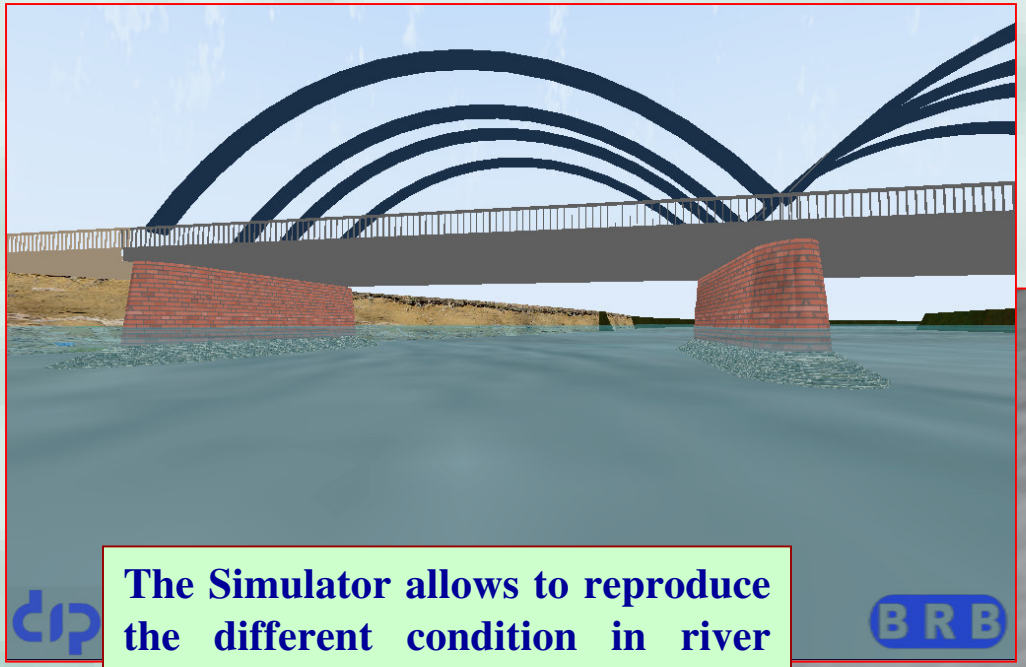
Deck Details

The Controls has been model based on the real equipment

Ship and Engine Instruments

The Virtual Deck Allows to redefine the Instrumentation based on Specific Needs

Critical Situations



The Simulator allows to reproduce the different condition in river operation, including bridge passing with strong current

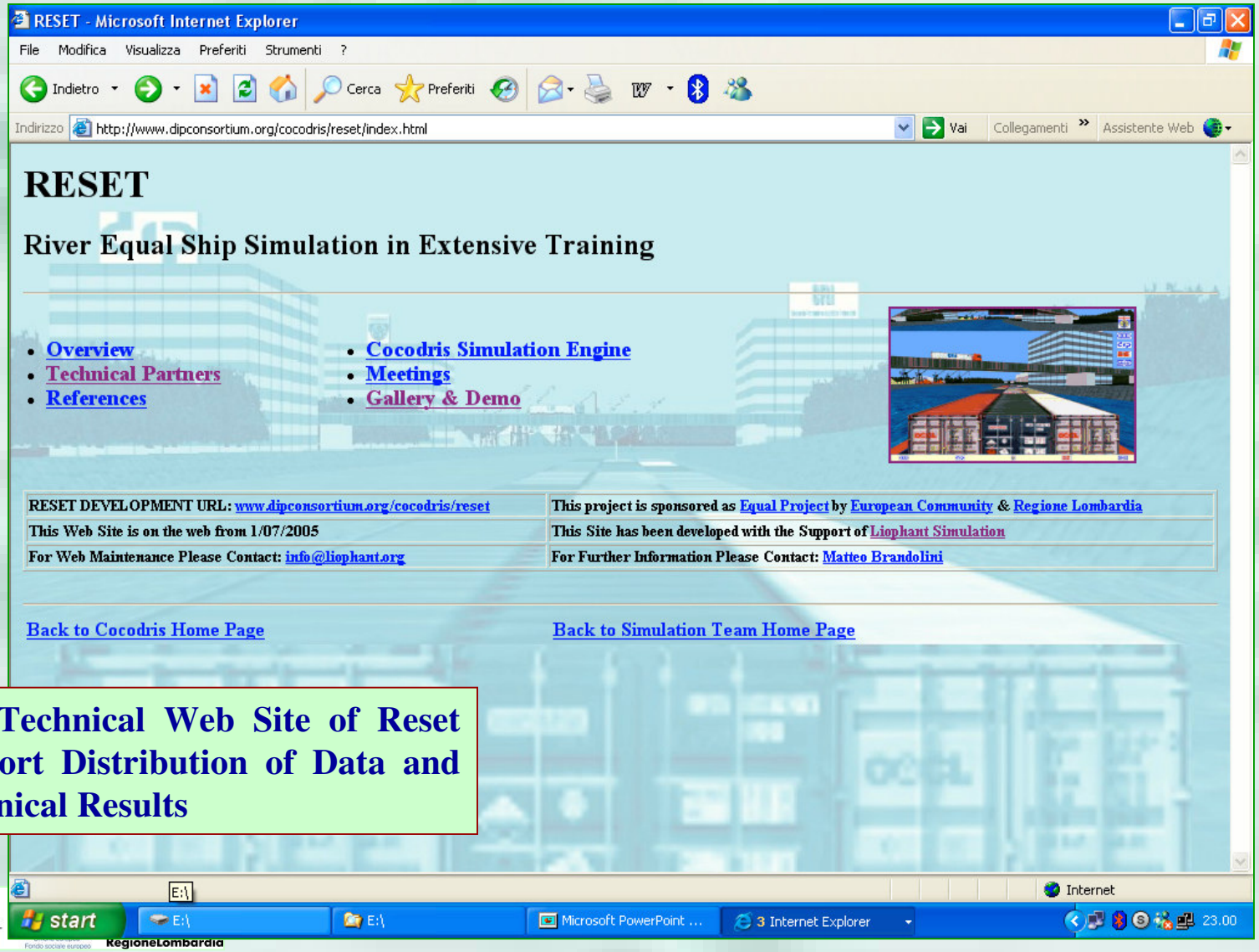
River Navigation

The Virtual Bridge provide an effective approach for reproducing different instruments on multiple ships for cooperative training in river navigation

Channels & Manoeuvring

Operations related to Port Entering and River Channel Navigation are reproduced

Technical WebService for Coordination



The Technical Web Site of Reset Support Distribution of Data and Technical Results

Conclusions

- RESET is an interesting customization of Cocodris Simulation and the application of HLA technology allows today to use this approach in the important sectors of River Navigation
- The Distributed Simulation is still today a very innovative development, allowing to promote simulation in an interactive cooperative environment based on HLA (High Level Architecture) at very low cost
- HLA Simulation is a standard for all the Simulation Projects in USA Military area since 1996 (DIP/DIPTEM is among the first active and most skilled teams worlwide); therefore this approach is still very challenging and few centers/developers are qualified to operate in this area.

www.dipconsortium.org/cocodris/reset

References

Development of Innovative Projects Consortium

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